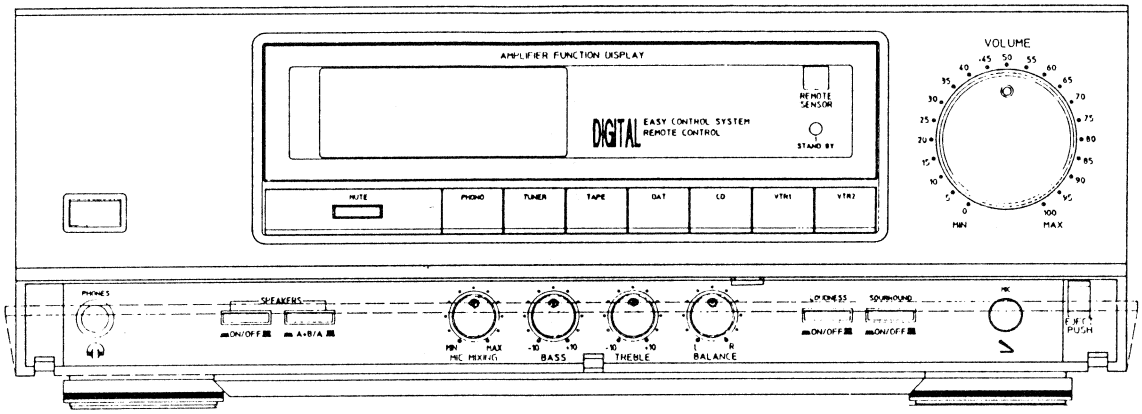
SAMSUNG Electronics

SERVICE MANUAL
MODEL: MQ-1310A

HI-FI STEREO INTEGRATED AMPLIFIER



SPECIFICATION

GENERAL

POWER SOURCE : SEE LABEL RATING
POWER CONSUMPTION : 440W
DIMENSIONS : 350(W) x 115(H) x 320(D) m/m
WEIGHT : 11.8Kg

ELECTRICAL

POWER OUTPUT (T.H.D 0.02%, 8Ω LOAD) : 100WATTS/CH
TOTAL HARMONIC DISTORTION (T.H.D) : 0.02%
FREQUENCY RESPONSE : 20Hz ~ 20KHz ± 0.5 dB
INPUT SENSITIVITY (100 WATTS 8 Ω)

- PHONO : 2.5mV
- TUNER/VTR/TAPE : 150mV (±2 dB)
- COMPACT DISC PLAYER : 250mV ± 2 dB
- MIC : 0.5mV
- VTR1/VTR2 : 1Vp-p/75

SEPARATION (at 1KHz) : 70 dB
SIGNAL TO NOISE RATIO (USE IHF-A NETWORK)

- PHONO : 75 dB
- COMPACT DISC PLAYER : 98 dB

TONE CONTROL

- BASS (100Hz) : ± 6 dB
- TREBLE (10KHz) : ± 6 dB

LOUDNESS CONTROL : + 6 dB (100Hz)
+ 4 dB (10KHz)

Design and specifications are subject to change upon improvement without prior notice.

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SERVICING NOTES

Disconnect power supply cord before separating cabinet for servicing as you may experience an electric shock.

Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.

Use a soft cotton swab moistened with warm water or neutral cleaner when parts of a unit need to be cleaned.

When replacing parts with safety features built in, be sure to use specified parts with same specs only.

Avoid repairing the set near a TV or any other magnetic forces.

Disconnect the plug from wall socket during electric strom to reduce the risk of damage.

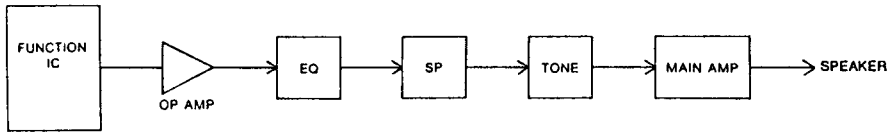
Be careful of electrostatic damage when replacing the control IC such as μ-COM, LSI and pick-up.

There are two voltage selectors in the unit which will change the voltage input. Before servicing or operating the unit, check if the voltage selector is set the same voltage as the current being used. When switching the voltage selector, unplug the power cord. (Dual Voltage option).

The unit is equipped with two pairs of speaker jacks but terminal B (system B) does not operate independantly. Either the terminal A or terminal A + terminal B will operate. Therefore, if you want to use just one pair of speakers, use system A. (Just press speaker ON/OFF selector switch only)

The unit misoperates or there is no buzzer sound when using remote control; if it is a malfunctioning circuit, refer to the schematic diagram.
If it is not a malfunctioning ciruit, operate the unit after connecting the 23 reset terminal to GND temporarily.

When operating with component system, sound comes through the speaker only if the equalizer and surround processor (option) are connected to Amplifier.



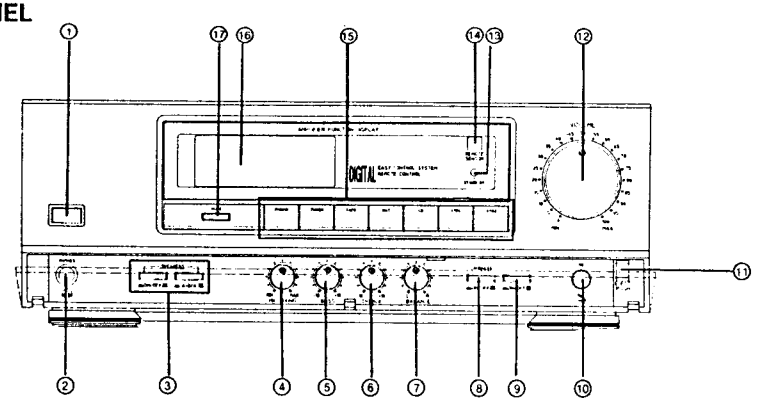
When you play the unit without equalizer and surround processor, connect in and output terminal connecting the equalizer and surround processor with short ring.

If the relay is off, turn power off and then on to operate the relay again.

Remember that when the mute is on, VTR dubbing recording, DAT and tape recording will not operate.

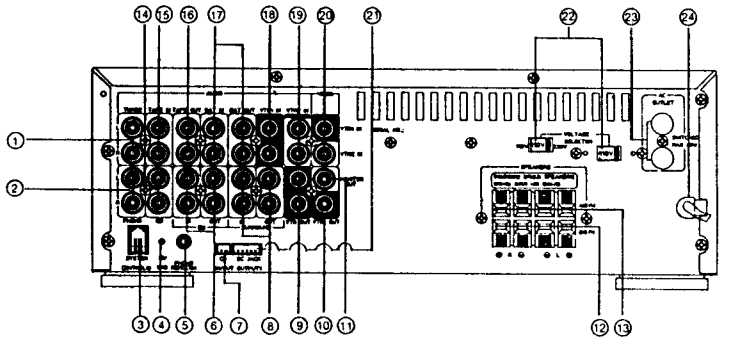
LOCATION OF CONTROLS

1. FRONT PANEL



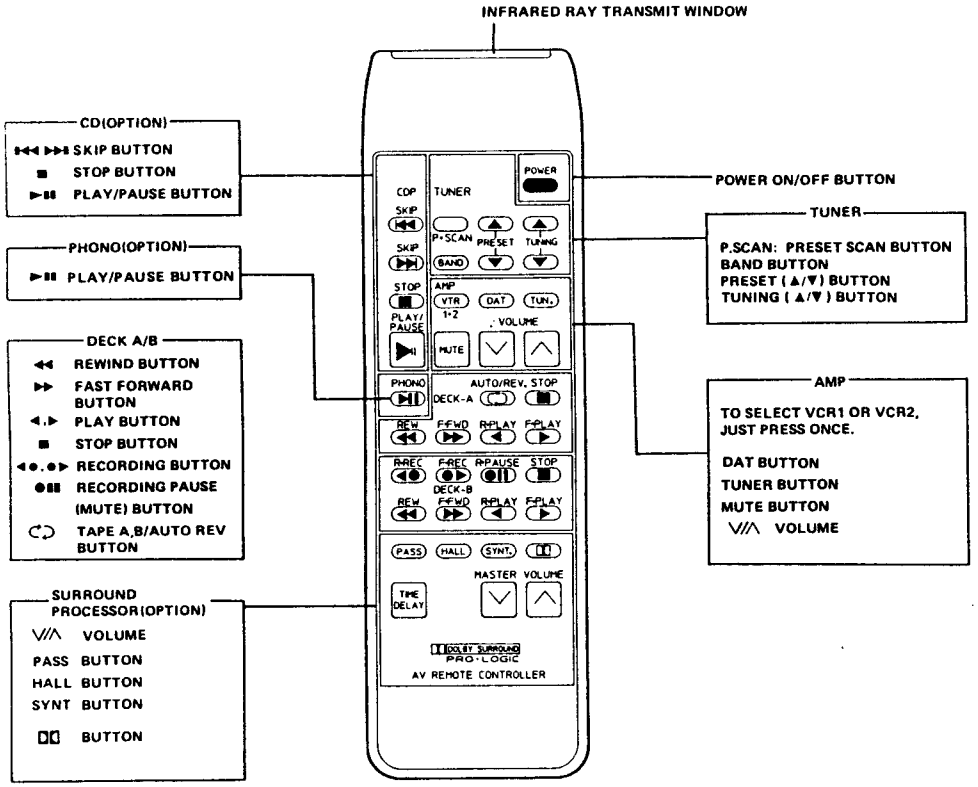
1. POWER BUTTON
2. HEAD PHONE JACK
3. SPEAKER SELECTOR SWITCH
4. MIC MIXING VOLUME
5. TONE CONTROL (BASS)
6. TONE CONTROL (TREBLE)
7. BALANCE
8. LOUDNESS SWITCH
9. MODE SWITCH (MONO/STEREO)
10. MIC JACK
11. DOOR PUSH EJECT BUTTON
12. VOLUME
13. STAND-BY INDICATOR
14. REMOTE CONTROL SENSOR
15. FUNCTION SELECTOR BUTTON
16. FUNCTION DISPLAY
17. MUTE BUTTON

2. REAR PANEL

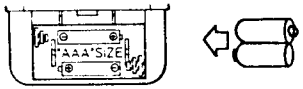


1. TUNER INPUT JACK
2. PHONO INPUT JACK
3. SYSTEM CONTROL JACK
4. GROUND TERMINAL
5. PHONO REMOTE CONTROL JACK
6. EQ IN/OUT JACK
7. CD IN/OUT JACK
8. SURROUND IN/OUT JACK
9. VTR1 AUDIO OUTPUT JACK
10. VTR1 VIDEO OUTPUT JACK
11. MONITOR OUTPUT JACK
12. SPEAKER TERMINAL (SYSTEM-B)
13. SPEAKER TERMINAL (SYSTEM-A)
14. CD INPUT JACK
15. TAPE INPUT JACK
16. TAPE OUTPUT JACK
17. DAT IN/OUT JACK
18. VTR1 AUDIO INPUT JACK
19. VTR2 AUDIO INPUT JACK
20. VTR1, 2 VIDEO INPUT JACK
21. DC POWER OUTPUT JACK
22. VOLTAGE SELECTOR (2 Voltage Region only, OPTION)
23. AC OUTLET (OPTION)
24. POWER CORD

3. REMOTE CONTROL UNIT

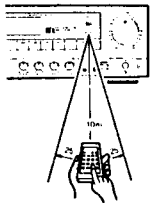


(HOW TO USE REMOCON CONTROLLER)

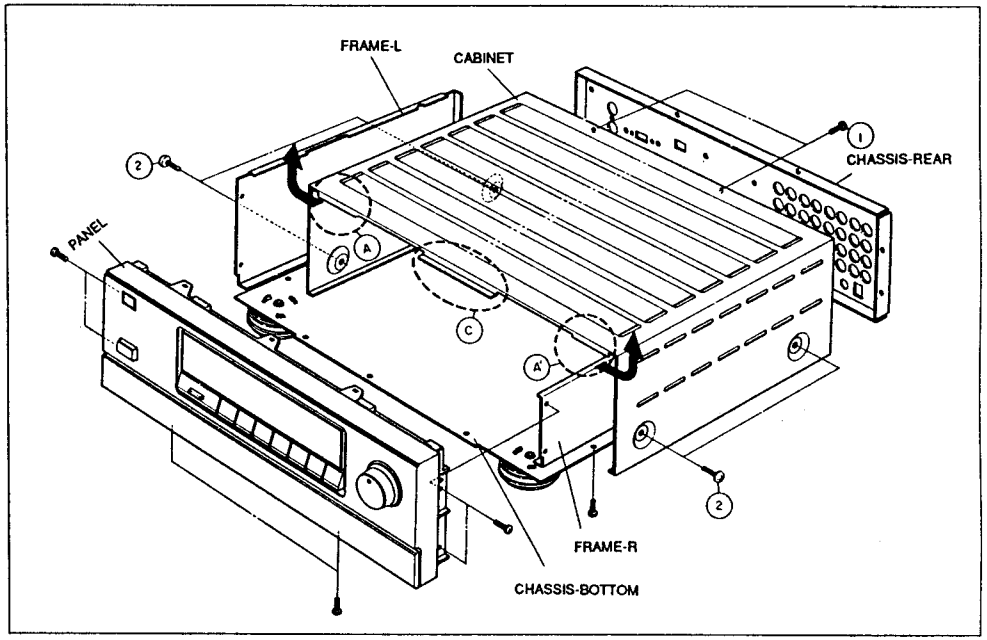


- Open the battery cover at the back of a remote control and load 2 batteries (1.5AAA type) with proper polarity positioning.
- Change batteries when the power becomes weak. Remote control unit can not be activated with low power.
- Remove batteries after their shelf life have been reached.

- Point remote control towards the signal input portion of the power amplifier.
- When using the function button of the surround-processor, point remote control towards the remote signal input portion of the surround processor.
- Operation range is within 25 degrees of either way of dead center and not more than 10 meter away distance.
- Remember that the operation range will be diminished or remote control will not operate under the direct sunshine and heat.



■ DISASSEMBLY INSTRUCTION

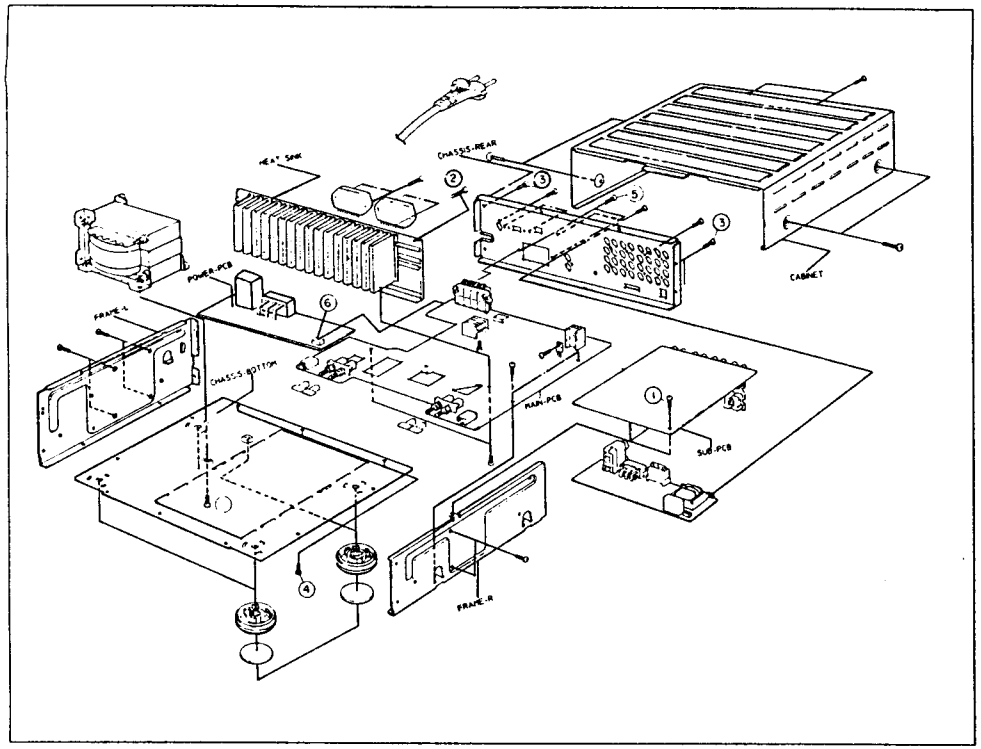


1. CABINET

1) Remove 2 screws (①) and 4 screws (②) from both sides of panel.
2) Lift up area A, A' to split from the panel and then lift the back side of a cabinet by approximately 45 degrees up and push area C towards the back of the unit.

2. PANEL

1) Remove 7 screws from both sides and bottom of a panel and then pull the panel towards you.

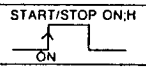


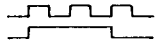
3. SUB PCB

1) Remove a screw (①) holding on right frame and sub PCB.
2) Remove a screw (②) holding on sub PCB and Heat Sink.
3) Remove 4 screw (③) and 2 screws (⑤) from Chassis Rear/Frame-L, Frame-R.
4) Remove 3 screws (④) holding on Chassis Bottom and Rear Chassis.
5) Disconnect connecting wire (⑥) linking Main PCB and Power PCB then remove cable tie for fixing wire and pull the sub PCB towards you.

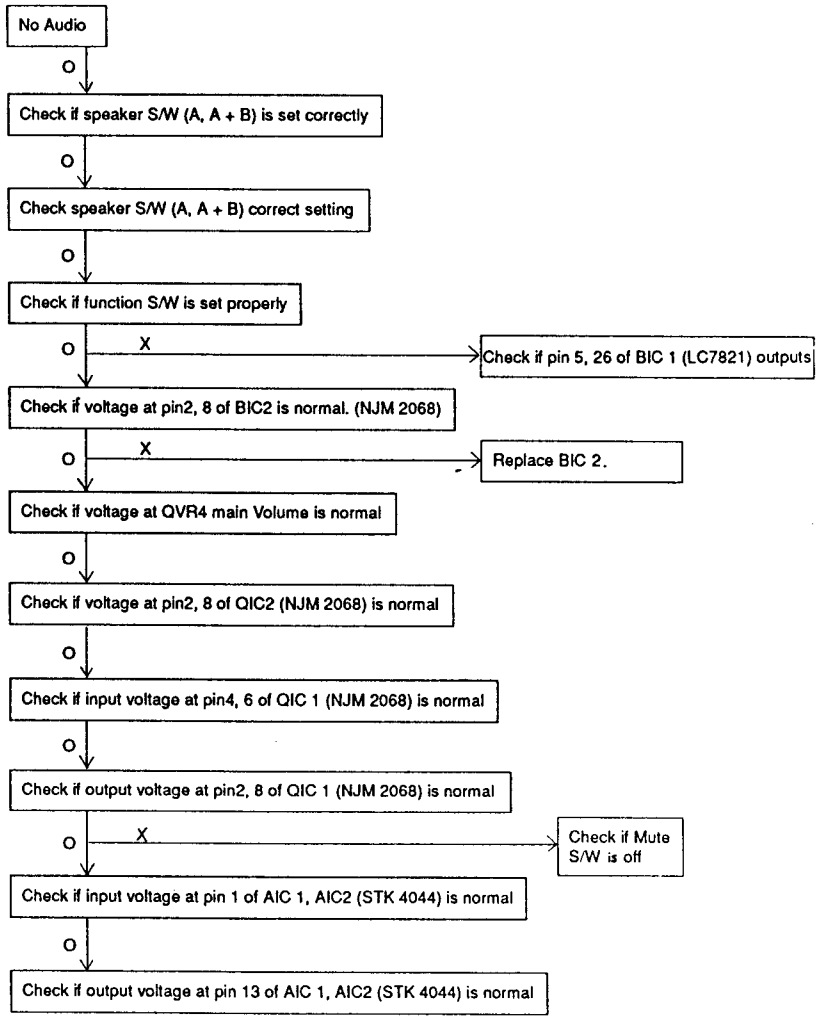
■ BASIC CIRCUIT OPERATION

LC6520H (MICOM) : UIC1

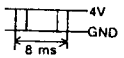
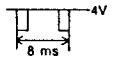
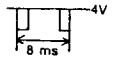
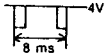
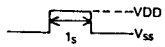
PIN NO.	I/O	OPERATION	PORT	ACTIVE H	ACTIVE L
1	I	CD input CD play	PA2	○	
2	I	CD osc stop output Tuner function "LOW" and function "HIGH"	PA3		○
3	I	Function input (DAT, PHONO)	PB0	○	
4	I	Function input (VTR1, TUNER)	PB1	○	
5	I	Function input (VTR2, CD, MUTE)	PB2	○	
6	I	Function input (POWER, TAPE)	PB3	○	
7	O	Function output (PHONO, TUNER, CD, TAPE)	PC0	○	
8	O	Function output (DAT, VTR1, VTR2)	PC1	○	
9	O	Function output (POWER, MUTE)	PC2	○	
10	I	Volume low : volume high : motor volume	PC3	○	
11	O	T/Table start, stop output 	PD0	○	
12	O	Remote control volume up output	PD1	○	
13	O	Remote control volume down output	PD2	○	
14	O	Power output	PD3	○	
15	O		PE0	○	
16		Not used	PE1		
17	I		PE2		○
18	I	T/Table start: stop input	PE3		○
19	I	Test	TEST		○
20	I	GND	Vss		○
21	O	Clock output	OSC 1		○
22	I	Clock input	OSC 2	○	
23	I	Reset	$\overline{RES}$	○	
24	O	VTR1 function output VIC1 PIN13 "HIGH" output	PF 1/SI	○	

PIN NO.	I/O	OPERATION	PORT	ACTIVE H	ACTIVE L
25	O	VTR2 function output VIC1 pin 5, 6 "HIGH" output	PF 1/SO	○	
26	I	T/Table Remote control "LOW" → belt type t/talbe Remote control "HIGH" → linear type t/table Remote control	PF 2/$\overline{SCK}$	○	
27	I	Remote control data input	PF 3/$\overline{INT}$	○	
28	O	Remote control Motor volume led drive Volume up/down Mute on 	PG0	○	
29	O	Remote control clock output	PG1	○	
30	O	Remote control data output	PG2	○	
31	O	Remote control CE output	PG3	○	
32	O	Lcd driver $\overline{INH}$ output	P10	○	
33	O	Lcd driver CE output	P11	○	
34	O	Lcd driver clock output	P12	○	
35	O	Lcd driver data output	P13	○	
36	O	Buzzer, output	PJ0	○	
37	O	Function control clock output	PJ1	○	
38	O	Function control data output	PJ2	○	
39	O	Function control CE output	PJ3		
40	I	B· (5V)	VDD	○	
41		Not used	PA0		
42	I	Power on/off input	PA1	○	

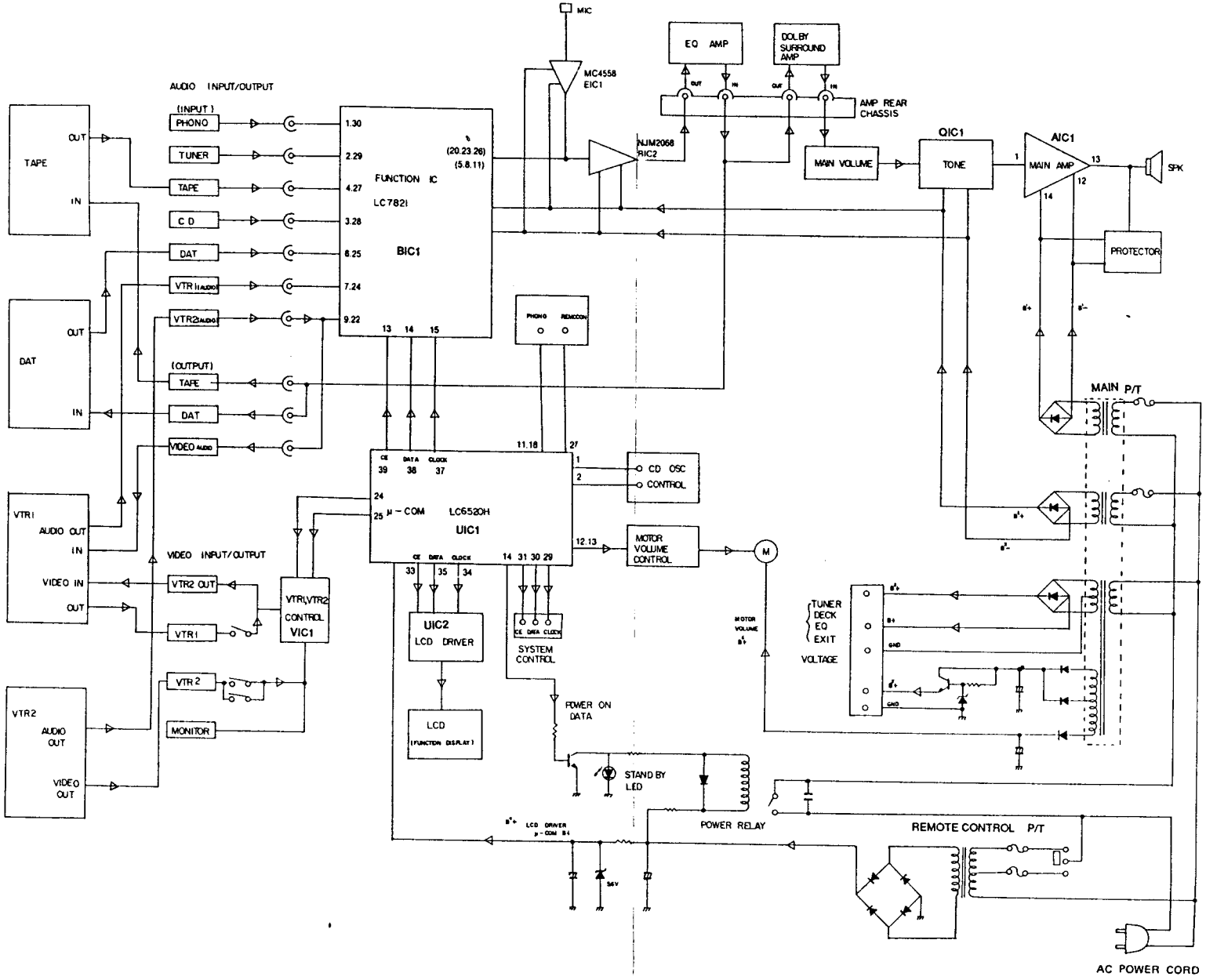
■ TROUBLE SHOOTING PROCEDURE


No Audio
O
Check if speaker S/W (A, A + B) is set correctly
O
Check speaker S/W (A, A + B) correct setting
O
Check if function S/W is set properly
O
X
Check if pin 5, 26 of BIC 1 (LC7821) outputs
Check if voltage at pin2, 8 of BIC2 is normal. (NJM 2068)
O
X
Replace BIC 2.
Check if voltage at QVR4 main Volume is normal
O
Check if voltage at pin2, 8 of QIC2 (NJM 2068) is normal
O
Check if input voltage at pin4, 6 of QIC 1 (NJM 2068) is normal
O
Check if output voltage at pin2, 8 of QIC 1 (NJM 2068) is normal
O
X
Check if Mute S/W is off
Check if input voltage at pin 1 of AIC 1, AIC2 (STK 4044) is normal
O
Check if output voltage at pin 13 of AIC 1, AIC2 (STK 4044) is normal

■ TROUBLE SHOOTING

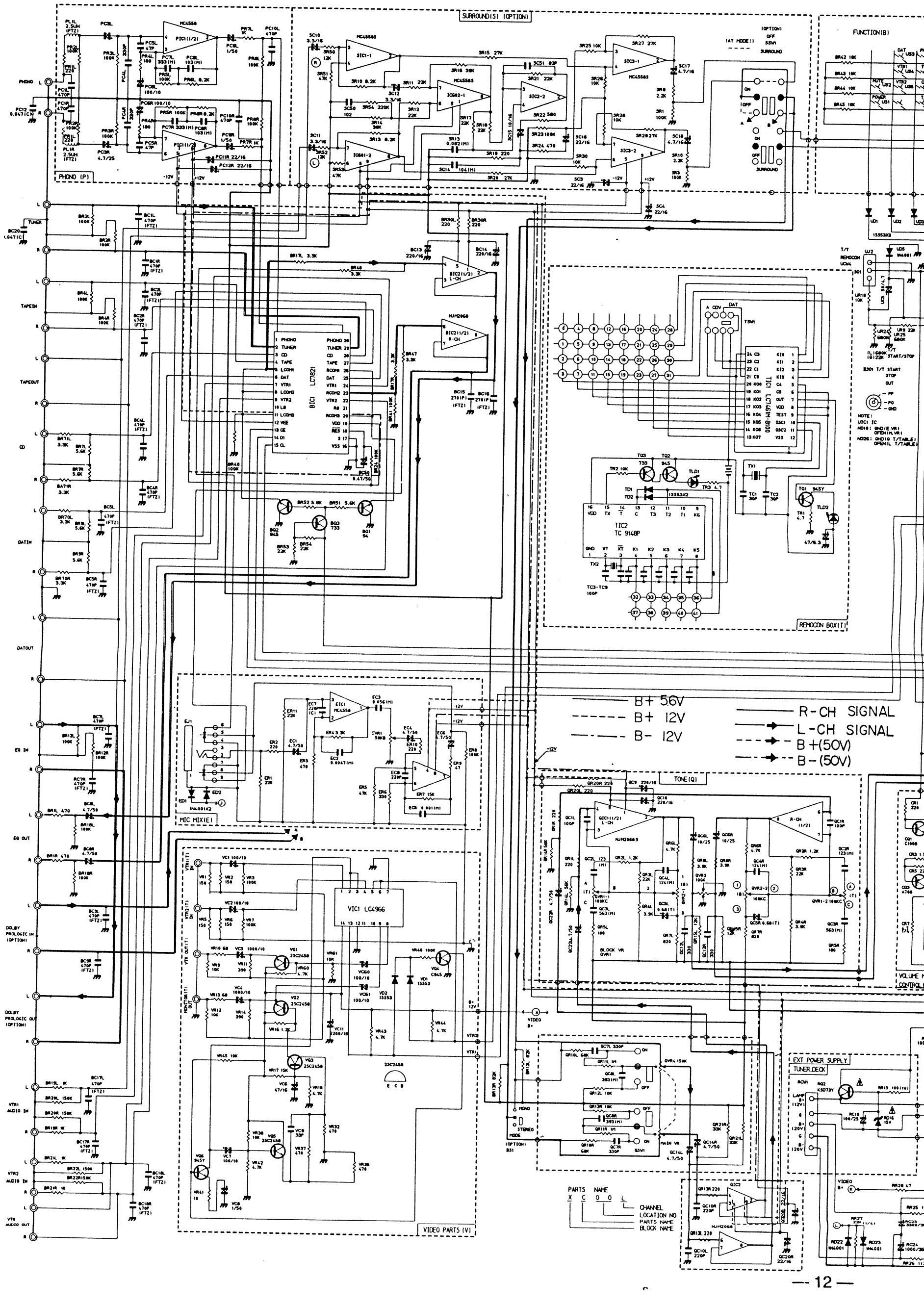
Symptom	Check If
Power on/off not working	1. Voltage at pin 14 of UIC2 is high when power is on. 2. Voltage at pin 14 of UIC2 is low when power is off.
Function problem DAT PHONO VTR1, TUNER VTR2, CD, MUTE POWER, TAPE	Check Voltage at UIC1 Check pin3 of UIC1 When on phono :  When on other functions : 4V Check pin4 When on TUNER & VTR1 :  When on other functions : 4V Check pin5 When on VTR2, CD, MUTE :  When on other functions : 4V Check pin6 When on power & Tape :  When on other functions : 4V
When on Tuner, CD oscillates	Voltage at pin2 of UIC1, when on Tuner, is low. Voltage at pin2 of UIC1, when on CD, is high
MUTE inoperative	Voltage at pin15, when on MUTE, is high. Voltage at pin15, when on other functions, is low
Remote Control UP/DOWN problem	Voltage at pin12 of UIC1, when "UP", is low. Voltage at pin12 of UIC1, when "DOWN", is high.
Remote Control T/T start, stop	Check voltage at pin11 of UIC1 
LCD display	Check pattern from LCD driver LC7582 to LCD. Check soldering of LCD driver.
LCD display insensible	Voltage of pin57 of LC7582 (LCD driver) is high.
VTR1/VTR2 inoperative	Voltage pin24 of UIC1 is high. Voltage at pin25 of UIC1 is high.

■ BLOCK DIAGRAM



■ SCHEMATIC DIAGRAM

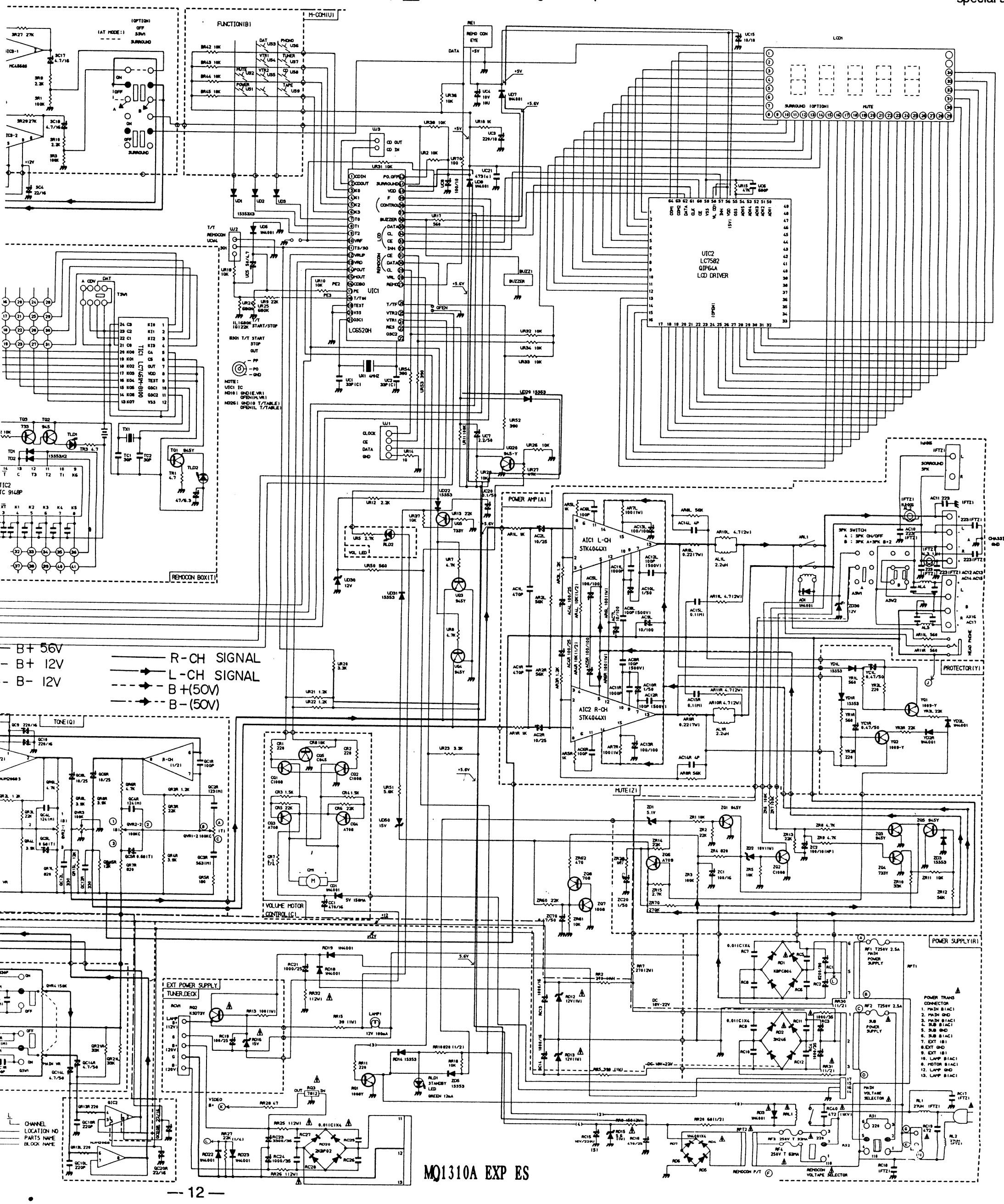
1.
2.
3.
4.



F G H I J K L

1. All resistors are in ohm (K = K ohm, M = M ohm) or, unless otherwise noted, wattage values (1/4, 1/8 W).
2. All capacitance values are indicated in μF, PF.
3. The schematic diagram is subject to change upon improvement without prior notice.
4. Be sure to use identical and standardized replacement parts, especially for critical parts in the unit since many parts in the unit ha
features marked by ⚠ in the schematic diagram and parts list.

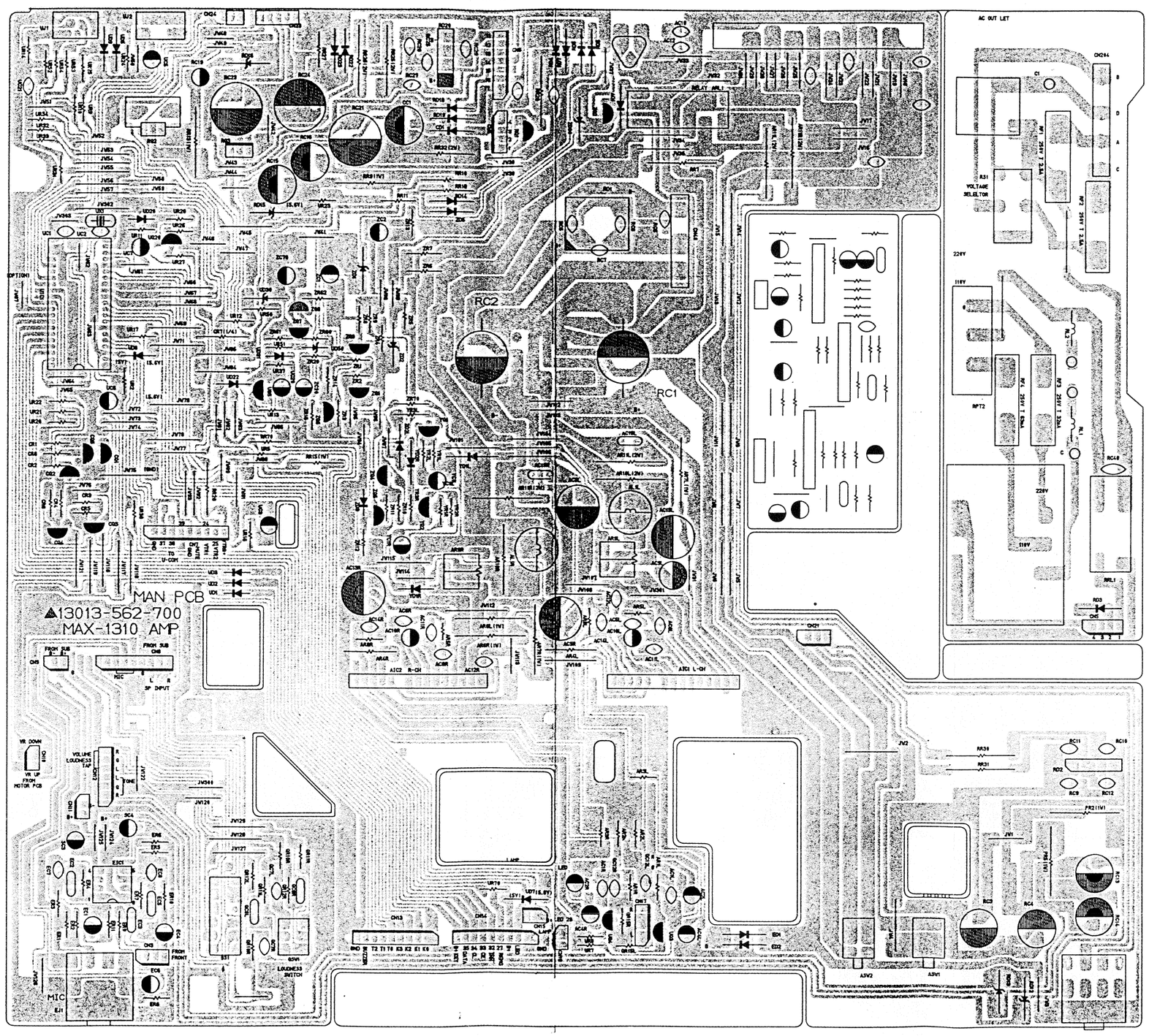
special sa



MQ1310A EXP ES

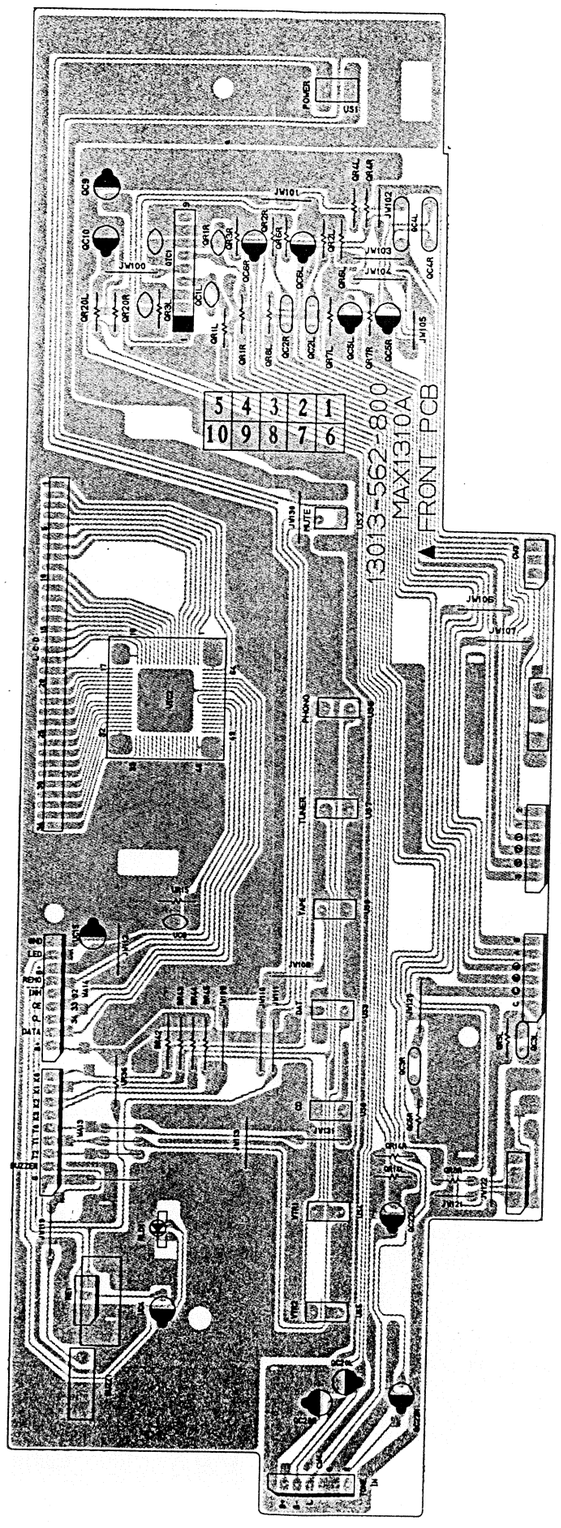
■ PCB PATTERN & MARKING DIAGRAM

MAIN PCB **POWER PCB**

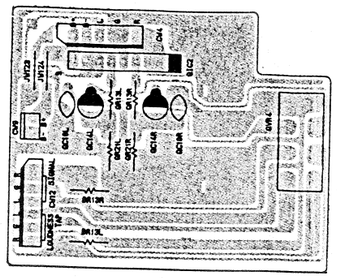


(PATTERN SIDE)

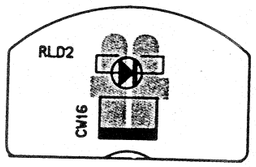
FRONT PCB



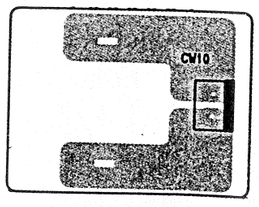
MAIN VR PCB



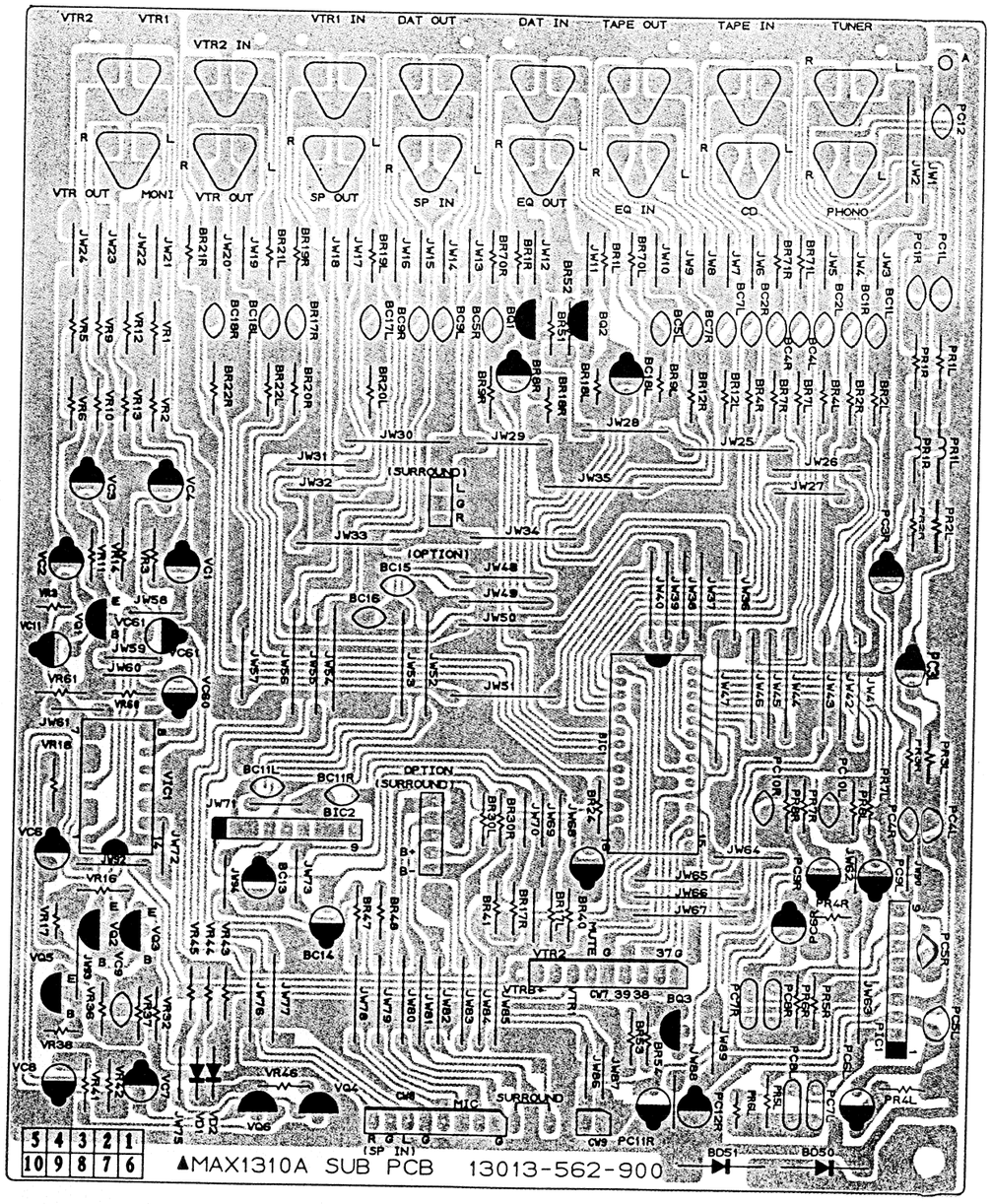
MOTOR VR LED PCB



MOTOR PCB

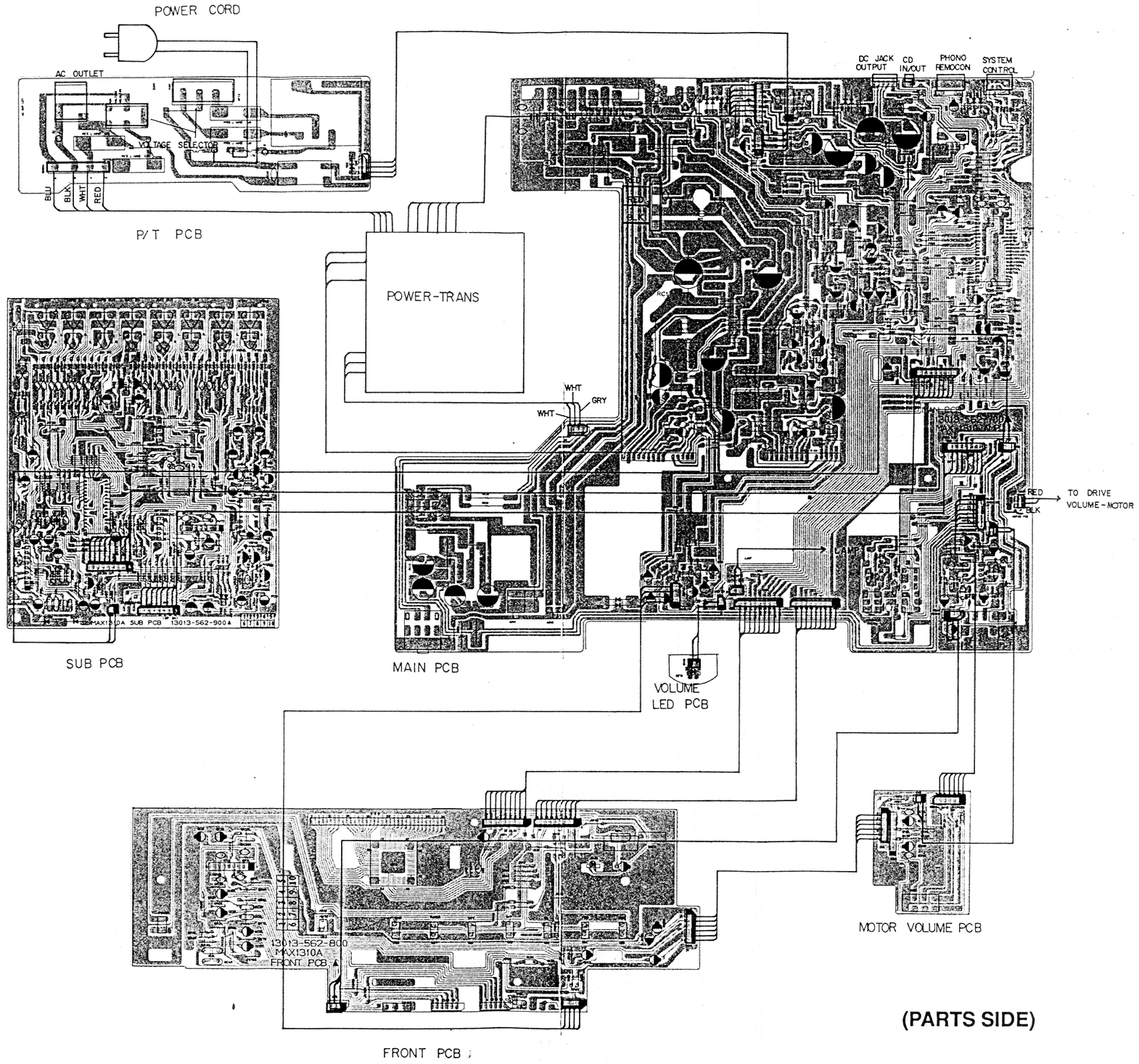


SUB PCB



(PATTERN SIDE)

■ WIRING DIAGRAM



(PARTS SIDE)

IC VOLTAGE CHART

1. LC 6520H (MICOM) : UIC1

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
VOLTAGE	4.7	0	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	0	0.34	0.35	0.99	0.22	0.8	0
PIN NO.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
VOLTAGE	0	0	0	2	2	5	0	0	0	4.7	0.146	4.6	4.6	2	4.7	0.6	0.1
PIN NO.	35	36	37	38	39	40	41	42									
VOLTAGE	0.19	0.378	0	0	0	4.9	4.3	0									

2. LC 7821 (IC-FUNCTION) : BIC1

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
VOLTAGE	0	0	0	0	0	0	0	0	0	0	−12.5	0	0	0	0	0	0
PIN NO.	18	19	20	21	22	23	24	25	26	27	28	29	30				
VOLTAGE	0	12.5	0	0	0	0	0	0	0	0	0	0	0				

3. STK 4044XI (POWER IC) : AIC1, AIC2

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
VOLTAGE	−0.2	−0.2	0	−54	−54	−0.8	1.2	54.5	−1.2	−1.2	55	−56.5	0	56.7	55.5

4. NJM 2068SD (OP AMP) : BIC2, QIC1

IC LOCATION NO. / PIN NO.	1	2	3	4	5	6	7	8	9
BIC 2 VOLTAGE	0	0	0	0	−12.5	0	0	0	12.5
QIC 1 VOLTAGE	12.5	0	0	0	−12.5	0	0	0	0
QIC 2 VOLTAGE	12.5	0	0	0	−12.5	0	0	0	0

5. LC 4966/LC 4066 (IC-SWITCH) : VIC1

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
VOLTAGE	4.7	9.47	9.4	4.8	0.1	0.1	0	0	6.75	0.4	0.7	0	0.1	10

6. MC 4558 (OP AMP) : PIC1, QIC1, QIC2, EIC1, BIC2

PIN NO.	1	2	3	4	5	6	7	8
VOLTAGE	0	0	0	−12.5	0	0	0	12.5

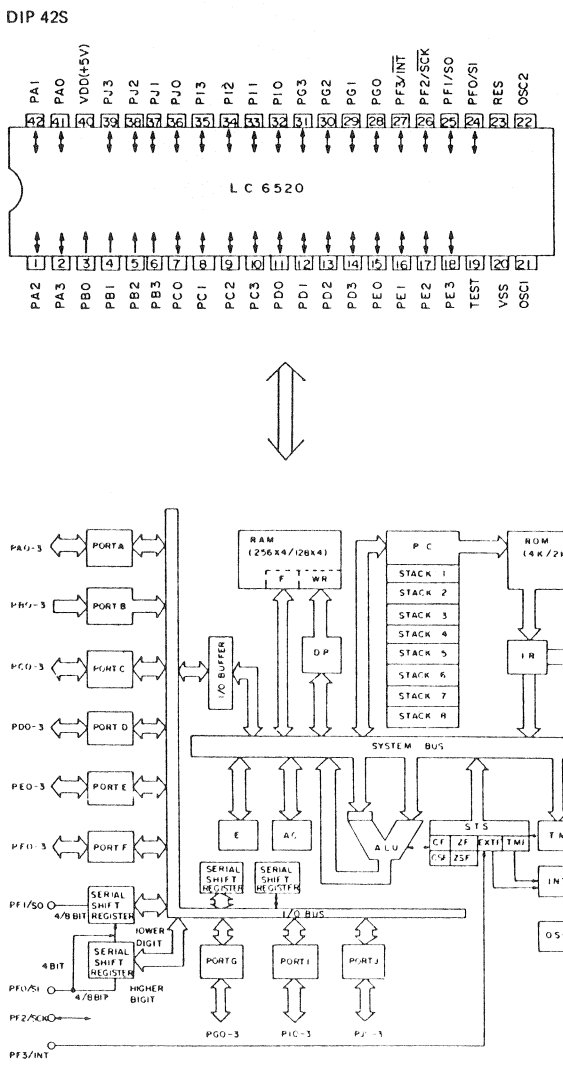
7. LC 7582 (LCD DRIVER) : UIC2

PIN NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
VOLTAGE	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
PIN NO.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
VOLTAGE	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3
PIN NO.	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
VOLTAGE	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
PIN NO.	52	53	54	55	56	57	58	59	60	61	62	63	64				
VOLTAGE	2.3	2.3	2.3	3.6	4.7	4.7	4.7	4.8	0	0.64	0.2	2.4	2.4				

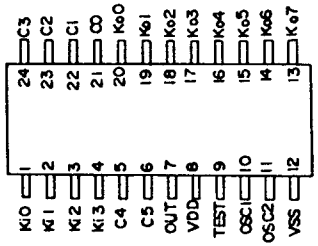
IC & TR INTERNAL DIAGRAM

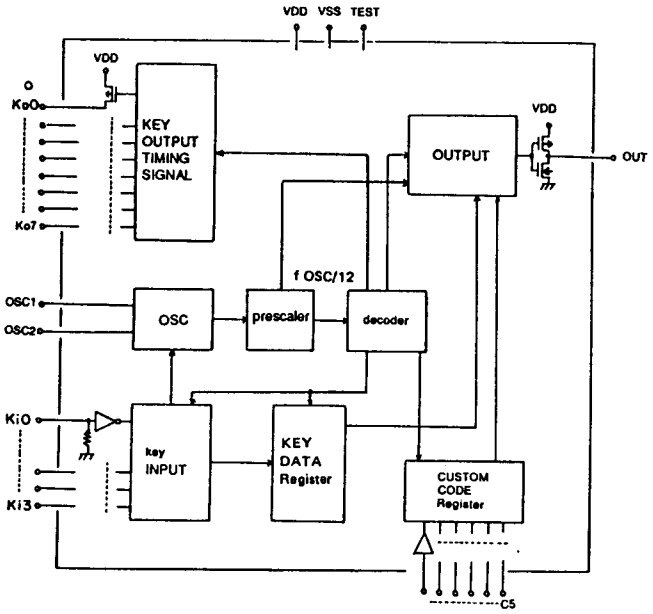
1. LC6520H (MICOM) : UIC1

DIP 42S

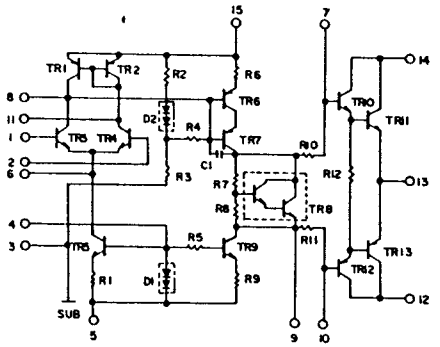


2. LC7461M (REMOTE CONTROL IC) : TIC1

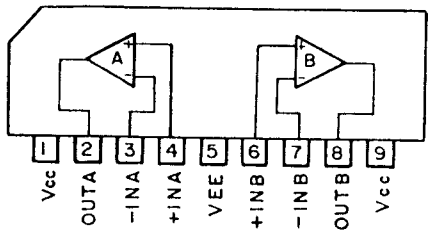




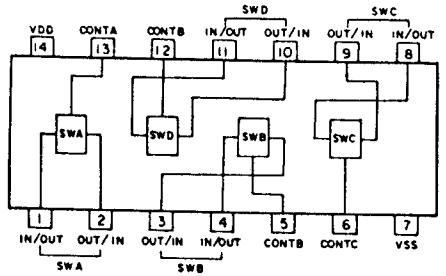
3. STK4044 (POWER IC) : AIC1, AIC2



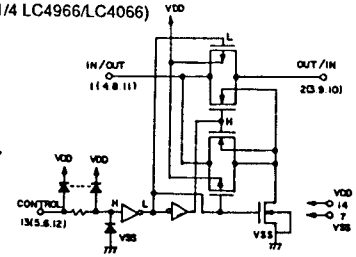
4. NJM2068SD (OP AMP) : QIC1, QIC2, PIC1
MC4558S (OP AMP) : EIC1, BIC2



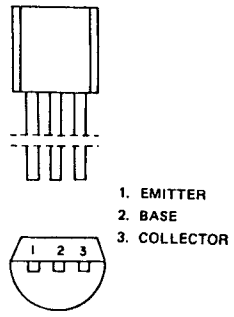
5. LC4966/LC4066 (IC-SWITCH) : VIC1



(1/4 LC4966/LC4066)

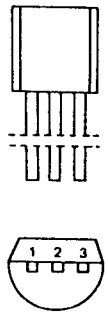


6. TR
KSA733-Y/KSC945-Y
/KSC1008-Y/KSA708-Y



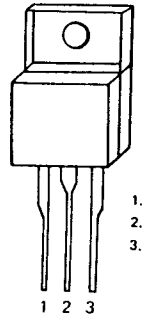
1. EMITTER
2. BASE
3. COLLECTOR

2SC 2458-Y



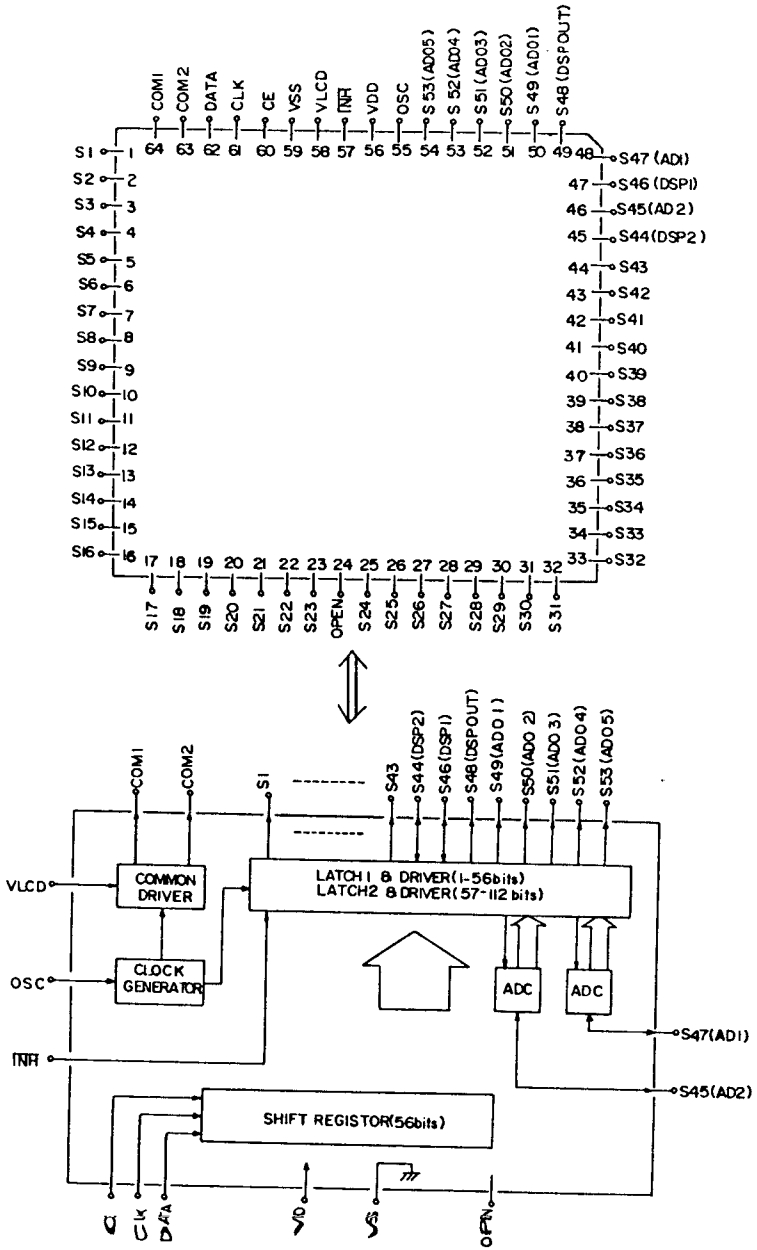
1. EMITTER
2. COLLECTOR
3. BASE

MC78M12

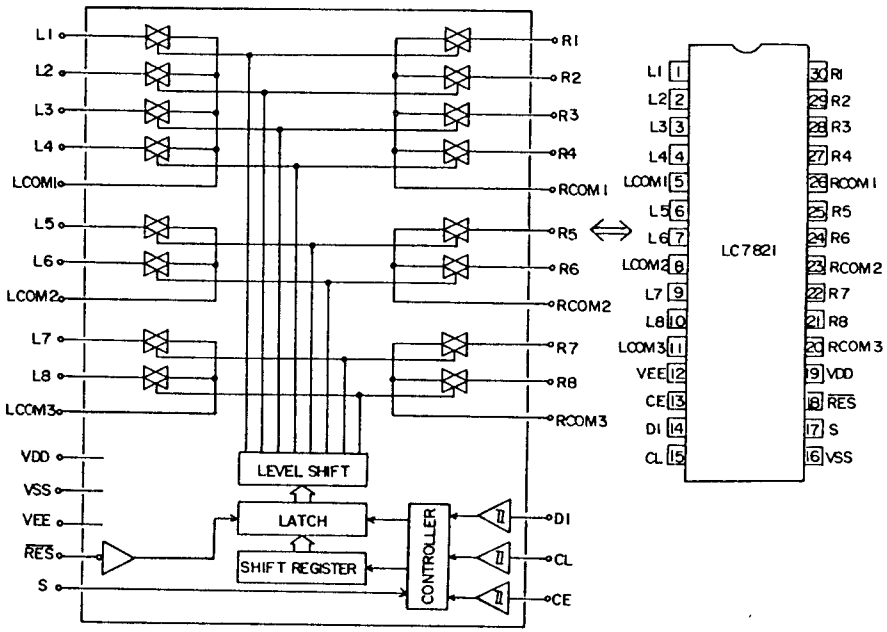


1. INPUT
2. GROUND
3. OUTPUT

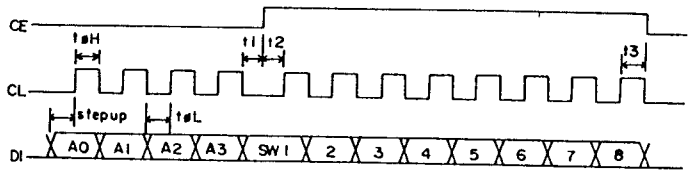
7. LC 7582A(LCD DRIVER) : UIC2



8. LC7821 (IC-FUNCTION) : BIC1

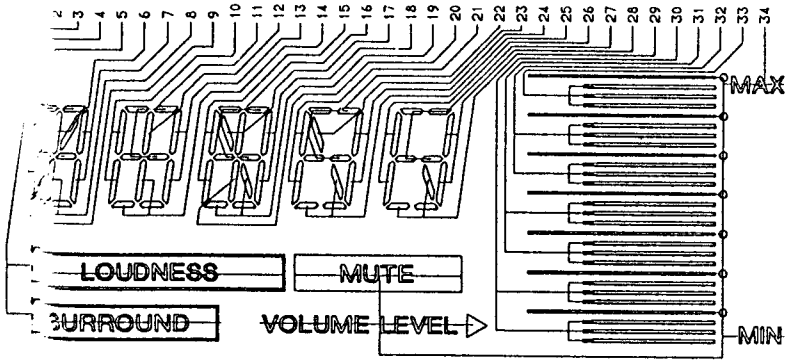


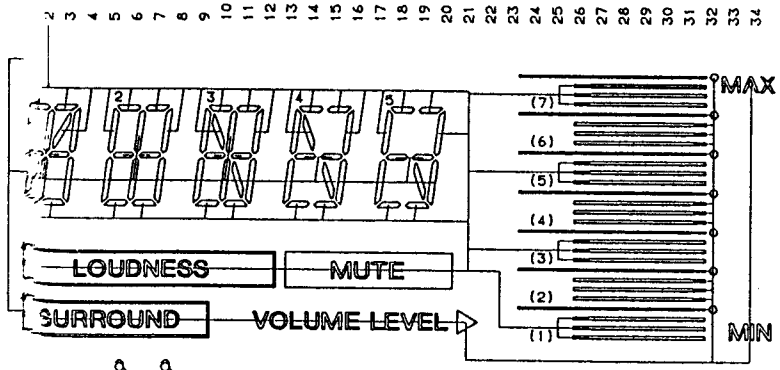
TIMING CHART

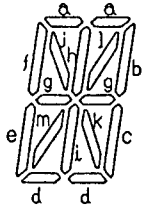


tøH, tøL, t1, t2, t3, > 0.5 μS

9. LCD8086[illegible] (LCD DISPLAY) : LCD1





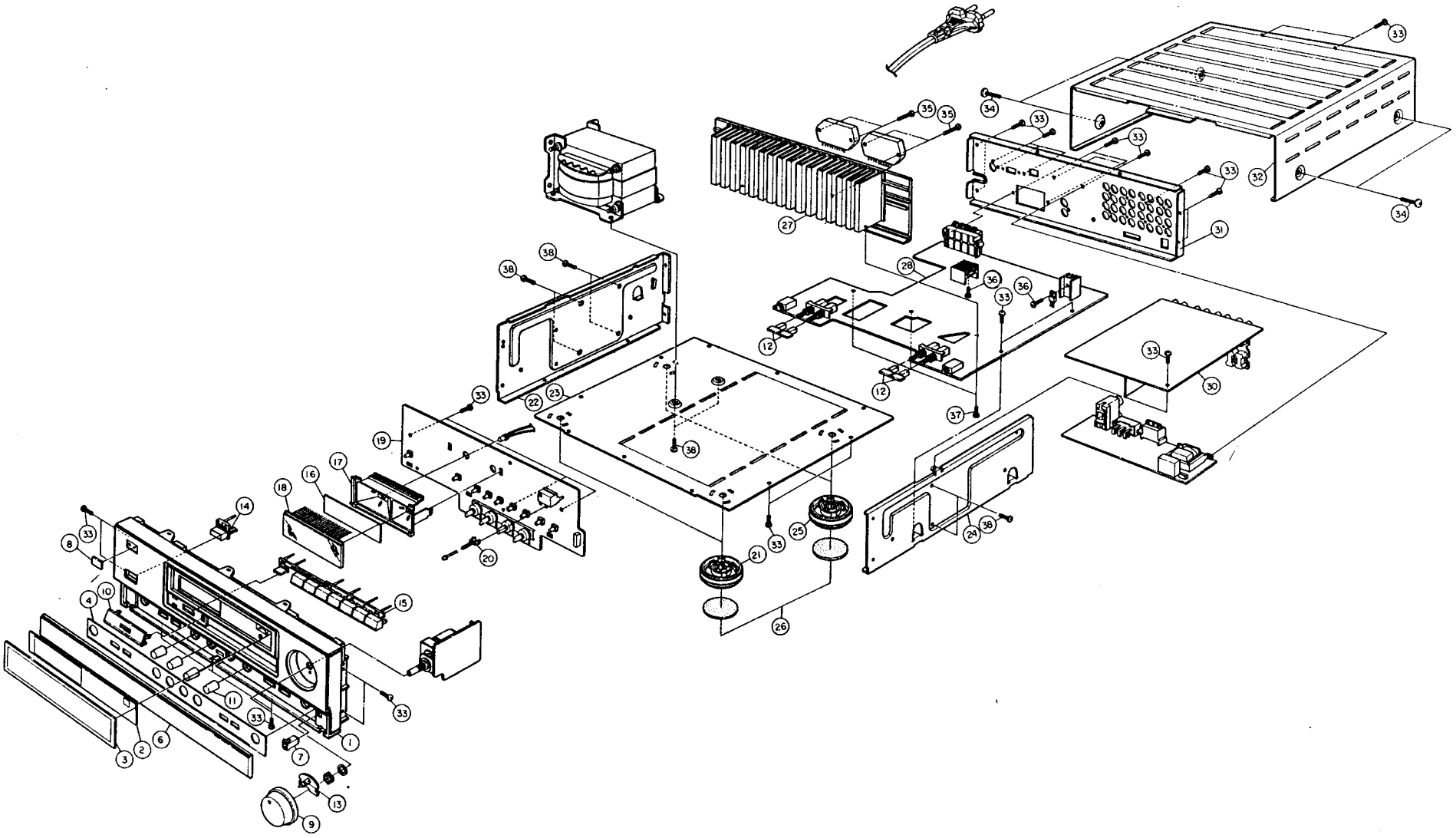


No.	COM1	COM2
1	—	COM
2	COM	—
3	LOUD-NESS	SURR-OUND
4	1 f	1 e
5	1 a	1 g
6	1 l	1 h
7	1 b	1 c
8	1 d	1 i
9	—	1 m
10	2 f	2 e
11	2 a	2 g
12	—	2 h

No.	COM1	COM2
13	2 b	2 c
14	2 d	2 i
15	3 f	3 e
16	3 a	3 g
17	3 j	3 h
18	3 b	3 c
19	3 d	3 k
20	—	3 i
21	4 f	4 e
22	4 a	4 g
23	4 j	—
24	4 b	4 c

No.	COM1	COM2
25	4 d	4 k
26	5 f	5 e
27	5 a	5 g
28	5 b	5 c
29	5 d	5 k
30	(1)	(2)
31	(3)	(4)
32	(5)	(6)
33	(7)	—
34	MUTE	1)

■ EXPLODED VIEW



MECHANICAL PARTS

No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
1	16001-611-810	PANEL ; ABS 94HB BLK MQ-1310A	1	
2	17643-524-910	PLATE-LCD, A ; PVC 0.5T MQ-1310A	1	
3	17643-525-010	WINDOW-LCD, A ; ACRYL 2T MQ-1310A	1	
4	16033-505-710	PLATE-SW, A ; PVC 0.5T MQ-1310A	1	
6	17613-508-620	DOOR-AMP ; ABS 94HB MQ-1310A SS CIP	1	
7	16604-538-210	DOOR-LATCH ; KIFCO LA 701	1	
8	18024-600-510	BADGE-BRAND ; COPPER 0.3T GOLD (RENAISSANCE)	1	
	18024-600-530	BADGE-HI FI ; COPPER 0.3T GOLD (HI FI)	1	
9	17623-580-910	KNOB-VR ; ABS 94HB MQ-1310A	1	
10	16604-534-210	CAP-KNOB, A ; ABS 94HB MQ-1310A	1	
11	17624-625-310	KNOB-ROTARY, A ; ABS 94HB MQ-1310A	4	
12	17624-625-410	KNOB-PUSH, A ; ABS 94HB MQ-1310A	4	
13	16602-501-910	HOLDER-LED (SP) ; ABS WHT + TI02	1	
14	17624-625-510	KNOB-POWER ; ABS 94HB MQ-1310A	1	
15	17623-581-010	KNOB-FUNC, A ; ABS 94HB MQ-1310A	1	
16	17654-559-210	FILTER-LCD (A) ; PC 0.5T SMOKE WHT	1	
17	16602-502-010	HOLDER-LCD (A) ; ABS WHT + TI02	1	
18	12339-101-020	LCD ; 8086NJP-AMP	1	
19	13013-562-800	PWB-FRONT ; 330 x 247 HB MAX1310	1	
20	16604-521-510	HOLDER-LED ; ABS BLK	1	
21	16072-500-120	FOOT-1 ; ABS 94HB BLK K860 QUE	2	
22	16122-537-210	FRAME-L ; EGI: 1T MQ-1310A	1	
23	16122-537-410	CHASSIS-BOTTOM ; EGI: 0.8T MQ-1310A	1	
24	16122-537-310	FRAME-R ; EGI: 1T MQ-1310A	1	
25	16072-500-110	FOOT ; ABS 94HB HOT STAMPING (K860A/QUE)	2	
26	16804-516-610	CUSHION-FOOT ; EVA SPONGE 3.0T	4	
27	15683-505-920	HEAT-SINK ; MQ-1310A	1	
28	13013-562-700	PWB-MAIN ; 330 x 300 IV-O 1310A	1	
30	13013-562-900	PWB SUB ; 330 x 197HB MAX1310	1	
31	16123-514-730	CHASSIS-REAR ; SECC 0.7T DCI VOLTAGE	1	
32	16103-502-510	CABINET ; PVC STEEL 0.75T MQ-1310A	1	
33	17458-130-081	SCREW-TAP TITE, BH ; B-3 x 8 FE FZY	40	
34	17128-640-083	SCREW-TAP, TH ; 3S-4 x 8 FE FZB	4	
35	17448-130-201	SCREW-TAP TITE RH ; B-3 x 20 FE FZY	4	
36	17458-230-141	SCREW-TAP TITE BH ; B-3 x 14 FZY	2	
37	17558-230-081	SCREW-TAP TITE SPEC ; S-3 x 8 FZY	3	
38	17428-240-081	SCREW-TAP TITE TH ; T-4 x 8 FZY	6	

■ PARTS LIST

Be sure to use identical and standardized replacement parts, especially for critical parts since many parts in the unit have special safety features marked by ⚠ in the schematic diagram and parts list.

1. ELECTRICAL PARTS

ASS'Y REMOCON

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
CHIP	11449-518-101	CONDENSER AXIAL-LEAD; 50V UP050 B100-K	9	
CHIP	11449-518-102	CONDENSER AXIAL-LEAD ; 50V UP050 B1000-K	2	
TTR02	12149-202-050	TRANSISTOR; KSB 564A-Y	1	
TTR01, 03	12149-401-150	TR-CHIP; KSD 471-Y TAPE	2	
TIC 01	12109-401-180	IC-REMOCON; LC7461M-8100	1	
TIC 02	12119-101-900	IC-REMOCON; TC9148P	1	
TD 01, TD 02	12169-301-290	DIODE-SW; 1SS53/1N4148, CT: 6PF	2	
TLD01, 02	12309-101-700	LED-INFRARED; EL1	2	
	13013-517-040	PCB-REMOCON; 175 x 56M/M 1.6T 1V-O	1	
TX01, 02	14539-504-030	CERAMIC-RESONATOR; CSB455EBL	2	

ASS'Y MAIN PCB

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
AR9R, AR9L	11039-757-228	R-CEMENT; RS7P 0.22-J RUG	2	
AR7L, AR7R, AR6L, AR6R	11048-477-101	R-METAL OXIDE; RS1T 100-J MINI TYPE	4	
RR13	11048-477-121	R-METAL OXIDE; RS1T 120-J MINI TYPE	1	
RR2	11048-477-271	R-METAL OXIDE; RS1T 270-J MINI TYPE	1	
RR5	11048-477-391	R-METAL OXIDE; RS1T 390-J MINI TYPE	1	
RR9	11048-477-151	R-METAL OXIDE; RS2T 150-J MINI TYPE	1	
AR11L, AR11R, RR7	11048-477-331	R-METAL OXIDE; RS2T 330-J MINI TYPE	3	
RR25, RR26	11058-527-010	R-FUSIBLE; 2P 1-J	2	⚠
AR10L, AR10R, AR11L, AR11R	11058-537-476	R-FUSIBLE; 2P 4.7-J	4	
UC21, BC20, PC12	11417-344-473	C-CERAMIC, HK; CK45T F 50V 0.047M-Z	3	
RC13, RC14	11609-401-510	C-ELECTROLYTIC; CE04W 16V 1000M	2	
EIC1	12119-401-170	IC-OP AMP; MC4558C	1	
RR9	11048-477-151	R-METAL OXIDE; RS1T 150-J MINI TYPE	1	
RC40	11469-501-120	C-CERAMIC, AC; 1KV 0.0047M-J	1	⚠
RC16	11609-401-710	C-ELECTROLYTIC; CE04W 25V 470M	1	
RQ1	12149-301-930	TRANSISTOR; KSC1008-Y, TAPE	1	
RD3, RD4, RD5, RD6, RD7	12169-201-080	DIODE-RECTIFIER; 1N4001, TAPE	5	⚠
RD15	12169-404-110	DIODE-ZN; RD5.6FB/UZP-5.6B	1	⚠
	13599-801-060	VOLTAGE SELECTOR; SDKGA4241A	1	⚠OPTION
	13599-502-020	VOLTAGE SELECTOR; PCB 00120353A(354) 110/220V	1	⚠OPTION
RRL1	14729-501-080	RELAY; DH12D1-0 (M)	1	⚠
RC3, RC4, RC23, RC24	11609-402-140	C-ELECTROLYTIC; EE04W 35V 1000M	4	
AC2L, AC2R	11608-902-220	C-ELECTROLYTIC; LN 2.2 U/50V	2	
RC1, RC2	11669-138-822	C-ELECTRONIC; 80V 8200 μF	2	
UIC1	12109-401-190	IC-U COM; LC6520H-4294 AMP	1	
AIC1, AIC2	12119-208-110	IC-AF POWER AMP; STK4044XI	2	

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
YQ1, 2	12139-301-310	TRANSISTOR; KSC 1009-Y	2	
UQ5, YQ1, 2, ZQ4, BQ3	12149-101-520	TRANSISTOR; KSA733-Y, TAPE	4	
CQ3, CQ4	12149-101-560	TRANSISTOR; KSA708-Y, TAPE	2	
ZQ1, UQ20, VQ6, UQ3, UQ4, VQ4	12149-301-900	TRANSISTOR; KSC945-Y, TAPE	11	
ZQ3, 5, CQ5, BQ1, 2				
CQ1, CQ2, ZQ2	12149-301-930	TRANSISTOR; KSC1008-Y, TAPE	3	
VQ1, VQ2, VQ3, VQ5	12149-304-450	TRANSISTOR; 2SC 2458-Y/2SC3199-Y	4	
RQ2	12149-401-070	TRANSISTOR; KSD73-Y	1	⚠
RD18, 19, CD1, AD1	12169-201-080	DIODE-RECTIFIER; 1N 4001, TAPE	10	⚠
RD22, UD5, ZD1, UD7, 8, RD23				
RD1	12169-210-720	DIODE-BRIDGE-KBPC804; 8A 400V	1	⚠
RD20, RD2	12169-219-210	DIODE-RECT; 2KBP02	2	⚠
UD4, 1, 2, 3, YD1L, ZD3	12169-301-290	DIODE-SW; 1SS53/1N4148, CT, 6PF	15	
VD1, 2, UD20, YD1R, 2L				
YD2R, RD14, ZD5, UD22				
ZD2	12169-403-600	DIODE-ZENOR; UZP-8.2B	1	
RD16	12169-403-910	DIODE-ZN; 1W11.4-12.6V UZP-15B	4	⚠
RD12, RD13, RD25				
RD16	12169-403-920	DIODE-ZN; 1W13 8-15 6V UZP-12B	1	⚠
	13013-562-700	PWB-MAIN; 330 x 300 1V-O 1310A	1	
	13059-201-203	LEAD-FASTEN; RING 1007 #26 200 mm	1	
UJ2	13339-101-509	JACK-HEADPHONE; HSJ0912-01-042	1	
UJ1	13339-616-010	MODULE JACK; 616PCB4-D	1	
	13349-511-547	CONNECTOR-WAFER; 5268-05A	2	
	13349-512-561	CONNECTOR-WAFER; STICK5267-02A2P-TYPE	6	
	13349-512-565	CONNECTOR-WAFER; STICK5267-06A6P-TYPE	1	
	13349-512-568	CONNECTOR-WAFER; STICK5267-07A7P-TYPE	1	
UJ3	13349-511-573	CONNECTOR-WAFER; 5268-02A	1	
	13349-527-502	CONNECTOR-WAFER; STICK 5267-03A 3P	6	
RQ3	12109-401-690	IC-REGULATOR; MC7812C	1	⚠
FUSE	14709-201-040	FUSE; T250V 32MA UL/CSA	1	⚠
FUSE	14709-202-051	FUSE; 51T 250V 63MA KS	1	⚠
FUSE	14709-441-261	FUSE; T250V 2.5A	2	⚠
BS1, ASW1	13529-204-400	PUSH-SWITCH; SPUL24 x 1 T021	2	
US1 – US9	13559-901-090	SWITCH-TACT; SKHVBG007A	9	
UX1	14534-504-040	CERAMIC-RESONATOR; CSA 4.00MG	1	
ARL1	14729-501-090	RELAY; DH12D2-OS(M)	3	
	12869-216-810	TRANS POWER; 105 X 60MM 110V220V	1	⚠
	12869-216-910	TRANS POWER; 35 x 14M/M 110/220V	1	⚠
	12869-216-912	TRANS POWER REMOCON; 220V VDE 35 x 14	1	⚠

ASS'Y FRONT PCB

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
QVR4	11219-804-050	VR-MOTOR; RK16312MA 03 UA(150KB x 2)	1	
QVR1	11299-102-010	VR-ROUND, BLOCK; 180RH01 4B25FA50/C100/BM50K	1	
QC10L, QC10R	11449-518-471	CONDENSER-AXIAL LEAD; 50V UP 050 B470-K	2	
LAMP1	12058-520-820	LAMP; DC12V 100MA 200M/M WAFER	1	
UIC2	12109-401-260	IC-LCD DRIVER; LC7582	1	
QIC1, QIC2	12119-401-760	IC-OP AMP; NJM2068SD/UPC4570HA	2	
ED1, ED2	12169-201-080	DIODE-RECTIFIER; 1N 4001, TAPE	2	
RE1	12199-101-130	REMOCON EYE; SV06C	1	
RLD1	12309-104-410	LED-LAMP; SLV-31 MC3	1	
RLD2	12309-104-700	LED; SLC-26VR5	1	
LCD1	12339-101-020	LCD; 8086NJP-AMP	1	
	13013-562-800	PWB-FRONT; 330 x 247 HB MAX1310A	0.5	
	13078-173-220	CONNECTOR-WIRE/B, S; 5102-03/5395-03 1061 #26 200	2	
	13078-422-117	CONNECTOR-WIRE/B, S; 5264-02/5395-02 1571 #28 170	1	
	13078-493-220	CONNECTOR-WIRE/B, S; 5264-03/5395-03 2547 #28 200	2	
	13088-472-125	CONNECTOR-WIRE/B, L; 5264-02/JC25-02 1061 #26 250	3	
	13088-484-140	CONNECTOR-WIRE/B, L; 5264-4/JC25-04 1533 #28 400	2	
	13088-496-120	CONNECTOR-WIRE/B, L; 5264-06/JC25-06 2547 #28 200	1	
AJ1	13339-105-007	JACK-HEAD PHONE; HYT60-065(M)	1	
EJ1	13339-105-008	HEAD PHONE JACK; HYT80-065(M)	1	
	13349-527-502	CONNECTOR-WAFER; STICK 5267-03A 3P	2	
BUZZ1	14739-501-010	BUZZER; WES20-15PC	1	

ASS'Y SUB PCB

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
	13013-562-900	PWB SUB; 330 x 197HB MAX1310A	0.5	
PC11L, 11R, VC11	11609-401-530	C-ELECTROLYTIC; CE04W 16V 2200M	3	
VIC1	12109-401-640	IC-SWITCH; LC-4066	1	
BIC1	12109-401-270	IC-FUNCTION; LC7821	1	
BIC2	12119-401-630	IC-DUAL OP AMP; MC4558C	1	
PC2L, PC2R	11449-518-151	CONDENSER AXIAL-LEAD; 50V UP050 B150-K	2	
PC4L, PC4R	11449-518-221	CONDENSER AXIAL-LEAD; 50V UP050 B220-K	2	
PIC1	12119-401-630	IC-DUAL OP AMP; MC4558S	1	

■ ABBREVIATION LIST

AC	: Alternating Current		L	: Left, Low	
Addr	: Address		LCD	: Liquid Crystal Display	
ADJ	: ADJustment		LED	: Light Emitting Diode	
AGC	: Automatic Gain Control		LPF	: Low Pass Filter	
ALC	: Automatic Level Control		LW	: Long Wave	
AM	: Amplitude Modulation				
AMP	: AMPlifier		Max	: Maximum	
AMPS	: Automatic Music Program Search		MHz	: MegaHertz	
ANT	: ANTenna		min	: minimum	
ASSY	: ASSemblY		MOD	: MODulation	
			MPX	: MultiPleX	
BAL	: BALance		MW	: Medium Wave	
BLK	: BLacK				
BLU	: BLUe		NF	: Negative Feedback	
BPF	: Band Pass Filter				
BRKT	: BRacKeT		OP AMP	: OPerational AMplifier	
			ORG	: ORanGe	
CF	: Ceramic Filter		OSC	: OSCillator	
ch	: channel				
cm	: centimeter		PB	: PlayBack	
COM	: COMmon		PCB	: Printed Circuit Board	
CON MIC	: CONdenser MICrophone		PLL	: Phase Lock Loop	
			P/T	: Power Transformer	
D	: Depth				
D/A Convertor	: Digital/Analog Convertor		R	: Right	
dB	: deciBel		RAM	: Random Access Memory	
DC	: Direct Current		REC	: RECord	
DEC	: DECoder		REG	: REGulator	
DET	: DETector		REW	: REWind	
DEV	: DEViation		RF	: Radio Frequency	
DSP	: Digital Signal Processor		ROM	: Read Only Memory	
DTS	: Digital Tuning System		R/P	: Record/Play	
EA	: EAch		sec	: second	
E-HEAD	: Erase HEAD		SSG	: Standard Signal Generator	
EQ	: EQualizer		SSP	: Serro Signal Processor	
			ST	: STereo	
FF	: Fast Forward		ST/EJT	: STop/EJecT	
F/F	: Flip Flop		SW	: SWitch, Short Wave	
FIG.	: FIGure				
FM	: Frequency Modulation		TP	: Test Point	
FREQ.	: FREQuency		TR	: TRansistor	
			TRANS	: TRANSformer	
GND	: GrouND				
GRN	: GReeN		V	: Volt	
GRY	: GRaY		VIO	: VIOlet	
			VCO	: Voltage Controlled Oscillator	
H	: Height, High		VOL	: VOLume	
Hz	: Hertz		Vpp	: Voltage peak to peak	
			VR	: Volume	
IC	: Integrated Circuit		Vref	: REFerence Voltage	
IF	: Intermediate Frequency		V/SEL	: Voltage SELector	
IFT	: Intermediate Frequency Transformer		VTVM	: Vaccum Tube Volt Meter	
I/O	: Input/Output		VVC	: Voltage Variable Capacitance	
KHz	: KiloHertz		W	: Watt, weight	
Kg	: Kilogram		WHT	: WHiTe	
			X	: crystal	
			YEL	: YELlow	